



#3

# SEQUENCE LISTING

110 WINTER, Gregory P.  
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<120> A NEW METHOD FOR TAPPING THE  
IMMUNOLOGICAL REPERTOIRE

<130> 062710024DVUS01

<140> 09/726,650

<141> 2000-11-28

<150> 07/933,958

<151> 1992-08-21

<150> 07/799,770

<151> 1991-11-27

<150> 07/533,103

<151> 1990-06-04

<160> 106

<170> FastSEQ for Windows Version 4.0

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<220>

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<222> (1)...(123)

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<400> 1

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
1 5 10 15  
Ser Leu Arg Leu Ser Cys Ala Thr Ser Gly Phe Thr Phe Ser Asp Phe  
20 25 30  
Tyr Met Glu Trp Val Arg Gln Pro Pro Gly Lys Arg Leu Glu Trp Ile  
35 40 45  
Ala Ala Ser Arg Asn Lys Ala Asn Asp Tyr Thr Thr Glu Tyr Ser Ala  
50 55 60  
Ser Val Lys Gly Arg Phe Ile Val Ser Arg Asp Thr Ser Gln Ser Ile  
65 70 75 80  
Leu Tyr Leu Gln Met Asn Ala Leu Arg Ala Glu Asp Thr Ala Ile Tyr  
85 90 95

Tyr Cys Ala Arg Asp Tyr Tyr Gly Ser Ser Tyr Trp Tyr Phe Asp Val  
 100 105 110  
 Trp Gly Ala Gly Thr Thr Val Thr Val Ser Ser  
 115 120

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 <213> Mouse

<220>  
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 <223> HPCM3-hybridoma

<400> 2  
 Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
 1 5 10 15  
 Ser Leu Arg Leu Ser Cys Ala Thr Ser Gly Phe Thr Phe Ser Asp Phe  
 20 25 30  
 Tyr Met Glu Trp Val Arg Gln Pro Pro Gly Lys Arg Leu Glu Trp Ile  
 35 40 45  
 Ala Ala Ser Arg Asn Lys Ala Asn Asp Tyr Thr Thr Glu Tyr Ser Ala  
 50 55 60  
 Ser Val Lys Gly Arg Phe Ile Val Ser Arg Asp Thr Ser Gln Ser Ile  
 65 70 75 80  
 Leu Tyr Leu Gln Met Asn Ala Leu Arg Ala Glu Asp Thr Ala Ile Tyr  
 85 90 95  
 Tyr Cys Ala Arg Asp Tyr Tyr Gly Ser Ser Tyr Trp Tyr Phe Asp Val  
 100 105 110  
 Trp Gly Ala Gly Thr Thr Val Thr Val Ser Ser  
 115 120

<210> 3  
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<220>  
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 <223> HPCM1-hybridoma

<400> 3  
 Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
 1 5 10 15  
 Ser Leu Arg Leu Ser Cys Ala Thr Ser Gly Phe Thr Phe Ser Asp Phe  
 20 25 30  
 Tyr Met Glu Trp Val Arg Gln Pro Pro Gly Lys Arg Leu Glu Trp Ile  
 35 40 45  
 Ala Ala Ser Arg Asn Lys Ala Asn Asp Tyr Thr Thr Glu Tyr Ser Ala  
 50 55 60  
 Ser Val Lys Gly Arg Phe Ile Val Ser Arg Asp Thr Ser Gln Ser Ile  
 65 70 75 80

Leu Tyr Leu Gln Met Asn Ala Leu Arg Ala Glu Asp Thr Ala Ile Tyr  
                   85                  90                  95  
 Tyr Cys Ala Arg Asp Tyr Tyr Gly Ser Ser Tyr Trp Tyr Phe Asp Val  
                   100                  105                  110  
 Trp Gly Ala Gly Thr Thr Val Thr Val Ser Ser  
                   115                  120

<210> 4  
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 <213> Mouse

<220>  
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 <222> (1)...(123)  
 <223> HPCM6-hybridoma

<400> 4  
 Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
   1                  5                  10                  15  
 Ser Leu Arg Leu Ser Cys Ala Thr Ser Gly Phe Thr Phe Ser Asp Phe  
                   20                  25                  30  
 Tyr Met Glu Trp Val Arg Gln Pro Pro Gly Lys Arg Leu Glu Trp Ile  
                   35                  40                  45  
 Ala Ala Ser Arg Asn Lys Ala Asn Asp Tyr Thr Thr Glu Tyr Ser Ala  
                   50                  55                  60  
 Ser Val Lys Gly Arg Phe Ile Val Ser Arg Asp Thr Ser Gln Ser Ile  
   65                  70                  75                  80  
 Leu Tyr Leu Gln Met Asn Ala Leu Arg Ala Glu Asp Thr Ala Ile Tyr  
                   85                  90                  95  
 Tyr Cys Ala Arg Asp Tyr Tyr Asp Tyr Pro His Trp Tyr Phe Asp Val  
                   100                  105                  110  
 Trp Gly Ala Gly Thr Thr Val Thr Val Ser Ser  
                   115                  120

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<220>  
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 <223> HPCM4-hybridoma

<400> 5  
 Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
   1                  5                  10                  15  
 Ser Leu Arg Leu Ser Cys Ala Thr Ser Gly Phe Thr Phe Ser Asp Phe  
                   20                  25                  30  
 Tyr Met Glu Trp Val Arg Gln Pro Pro Gly Lys Arg Leu Glu Trp Ile  
                   35                  40                  45  
 Ala Ala Ser Arg Asn Lys Ala Asn Asp Tyr Thr Thr Glu Tyr Ser Ala  
                   50                  55                  60

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ser | Val | Lys | Gly | Arg | Phe | Ile | Val | Ser | Arg | Asp | Thr | Ser | Gln | Ser | Ile |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Leu | Tyr | Leu | Gln | Met | Asn | Ala | Leu | Arg | Ala | Glu | Asp | Thr | Ala | Ile | Phe |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Tyr | Cys | Ala | Arg | Asp | Tyr | Tyr | Arg | Tyr | Asp | Gly | Trp | Tyr | Phe | Asp | Val |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Trp | Gly | Ala | Gly | Thr | Thr | Val | Thr | Val | Ser | Ser |     |     |     |     |     |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     |     |     |     |     |

<210> 6  
 <211> 123  
 <212> PRT  
 <213> Mouse

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Val | Lys | Leu | Val | Glu | Ser | Gly | Gly | Gly | Leu | Val | Gln | Pro | Gly | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Ser | Leu | Arg | Leu | Ser | Cys | Ala | Thr | Ser | Gly | Phe | Thr | Phe | Ser | Asp | Phe |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Tyr | Met | Glu | Trp | Val | Arg | Gln | Pro | Pro | Gly | Lys | Arg | Leu | Glu | Trp | Ile |
|     |     | 35  |     |     |     | 40  |     |     |     |     |     | 45  |     |     |     |
| Ala | Ala | Ser | Arg | Asn | Lys | Phe | Asn | Asp | Tyr | Thr | Thr | Glu | Tyr | Ser | Ala |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Ser | Val | Lys | Gly | Arg | Phe | Ile | Val | Ser | Arg | Asp | Thr | Ser | Gln | Ser | Ile |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Leu | Tyr | Leu | Gln | Met | Asn | Ala | Leu | Arg | Ala | Glu | Asp | Thr | Ala | Ile | Tyr |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Tyr | Cys | Ala | Arg | Asp | Tyr | Tyr | Gly | Ser | Arg | Tyr | Trp | Tyr | Phe | Asp | Val |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Trp | Gly | Ala | Gly | Thr | Thr | Val | Thr | Val | Ser | Ser |     |     |     |     |     |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     |     |     |     |     |

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 <213> Mouse

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 <223> HPCG13-hybridoma

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Val | Lys | Leu | Val | Glu | Ser | Gly | Gly | Gly | Leu | Val | Gln | Pro | Gly | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Ser | Leu | Arg | Leu | Ser | Cys | Ala | Leu | Ser | Gly | Phe | Thr | Phe | Ser | Asp | Phe |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Tyr | Met | Glu | Trp | Val | Arg | Gln | Thr | Pro | Gly | Lys | Arg | Leu | Glu | Trp | Ile |
|     |     | 35  |     |     |     | 40  |     |     |     |     |     | 45  |     |     |     |
| Ala | Ala | Ser | Arg | Asn | Val | Tyr | Asn | Asp | Tyr | Thr | Thr | Glu | Tyr | Ser | Ala |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Ser | Val | Lys | Gly | Arg | Phe | Ile | Val | Ser | Arg | Asp | Thr | Ser | Gln | Ser | Ile |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Leu | Tyr | Leu | Gln | Met | Asn | Ala | Leu | Arg | Ala | Glu | Asp | Thr | Ala | Ile | Tyr |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     |     | 95  |  |  |
| Tyr | Cys | Ala | Arg | Asp | Ala | Tyr | Gly | Ser | Ser | Tyr | Trp | Tyr | Phe | Asp | Val |  |  |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |  |  |
| Trp | Gly | Ala | Gly | Thr | Thr | Val | Thr | Val | Ser | Ser |     |     |     |     |     |  |  |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     |     |     |     |     |  |  |

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 <213> Mouse

<220>  
 <221> VARIANT  
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 <223> HPCG14-hybridoma

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Glu | Val | Lys | Leu | Val | Glu | Ser | Gly | Gly | Gly | Leu | Val | Gln | Pro | Gly | Gly |  |  |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |  |  |
| Ser | Leu | Arg | Leu | Ser | Cys | Ala | Thr | Ser | Gly | Phe | Thr | Phe | Ser | Asp | Phe |  |  |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |  |  |
| Tyr | Met | Glu | Trp | Val | Arg | Gln | Pro | Pro | Gly | Lys | Arg | Leu | Glu | Trp | Ile |  |  |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |  |  |
| Ala | Ala | Ser | Arg | Asn | Lys | Ala | Asn | Asp | Tyr | Thr | Thr | Glu | Tyr | Ser | Ala |  |  |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |  |  |
| Ser | Val | Lys | Gly | Arg | Phe | Phe | Val | Ser | Arg | Asp | Thr | Ser | Gln | Ser | Ile |  |  |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |  |  |
| Leu | Tyr | Leu | Gln | Met | Asn | Ala | Leu | Arg | Ala | Glu | Asp | Thr | Ala | Ile | Tyr |  |  |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |  |  |
| Tyr | Cys | Ala | Arg | Asp | Val | Tyr | Gly | Tyr | Asp | Tyr | Trp | Tyr | Phe | Asp | Val |  |  |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |  |  |
| Trp | Gly | Ala | Gly | Thr | Thr | Val | Thr | Val | Ser | Ser |     |     |     |     |     |  |  |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     |     |     |     |     |  |  |

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 <213> Mouse

<220>  
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 <222> (1)...(123)  
 <223> HPCG11-hybridoma

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Glu | Val | Lys | Leu | Val | Glu | Ser | Gly | Gly | Gly | Leu | Val | Gln | Pro | Gly | Gly |  |  |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |  |  |
| Ser | Leu | Arg | Leu | Ser | Cys | Ala | Thr | Ser | Gly | Ile | Thr | Phe | Ser | Asp | Phe |  |  |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |  |  |
| Tyr | Met | Glu | Trp | Val | Arg | Gln | Pro | Pro | Gly | Lys | Arg | Leu | Glu | Trp | Ile |  |  |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |  |  |
| Ala | Ala | Ser | Arg | Asn | Lys | Ser | Asn | Asp | Tyr | Thr | Thr | Glu | Tyr | Ser | Ala |  |  |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |  |  |
| Ser | Val | Lys | Gly | Arg | Phe | Ile | Val | Ser | Arg | Asp | Thr | Ser | Gln | Ser | Ile |  |  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 65  |     | 70  |     | 75  |     | 80  |     |     |     |     |     |     |     |     |     |
| Leu | Tyr | Leu | Gln | Met | Asn | Ala | Leu | Arg | Ala | Glu | Asp | Thr | Ala | Ile | Tyr |
|     |     | 85  |     |     |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Tyr | Cys | Ala | Arg | Asp | Tyr | Tyr | Gly | Ser | Ser | Tyr | Trp | Tyr | Phe | Asp | Val |
|     |     | 100 |     |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Trp | Gly | Ala | Gly | Thr | Thr | Val | Thr | Val | Ser | Ser |     |     |     |     |     |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     |     |     |     |     |

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<220>  
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 <223> HPCG132-hybridoma

|          |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 10 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Glu      | Val | Lys | Leu | Val | Glu | Ser | Gly | Gly | Gly | Leu | Val | Gln | Pro | Gly | Gly |
| 1        |     |     | 5   |     |     |     |     | 10  |     |     |     | 15  |     |     |     |
| Ser      | Leu | Arg | Leu | Ser | Cys | Ala | Thr | Ser | Gly | Ile | Thr | Phe | Ser | Asp | Phe |
|          |     | 20  |     |     |     |     | 25  |     |     |     | 30  |     |     |     |     |
| Tyr      | Met | Glu | Trp | Val | Arg | Gln | Pro | Pro | Gly | Lys | Arg | Leu | Glu | Trp | Ile |
|          | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |
| Ala      | Ala | Ser | Arg | Asn | Lys | Ala | Asn | Asp | Tyr | Thr | Thr | Glu | Tyr | Ser | Ala |
|          | 50  |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |     |
| Ser      | Val | Lys | Gly | Arg | Phe | Ile | Val | Ser | Arg | Asp | Thr | Ser | Gln | Ser | Ile |
| 65       |     |     |     | 70  |     |     |     | 75  |     |     |     |     |     | 80  |     |
| Leu      | Tyr | Leu | Gln | Met | Asn | Ala | Leu | Arg | Ala | Glu | Asp | Thr | Ala | Ile | Tyr |
|          |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |
| Tyr      | Cys | Ala | Arg | Asp | Tyr | Tyr | Gly | Ser | Ser | Tyr | Trp | Tyr | Phe | Asp | Val |
|          |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |     |
| Trp      | Gly | Ala | Gly | Thr | Thr | Val | Thr | Val | Ser | Ser |     |     |     |     |     |
|          |     | 115 |     |     |     |     | 120 |     |     |     |     |     |     |     |     |

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<220>  
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 <223> T15-myloma protein

|          |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 11 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Glu      | Val | Lys | Leu | Val | Glu | Ser | Gly | Gly | Gly | Leu | Val | Gln | Pro | Gly | Gly |
| 1        |     |     | 5   |     |     |     |     | 10  |     |     |     | 15  |     |     |     |
| Ser      | Leu | Arg | Leu | Ser | Cys | Ala | Thr | Ser | Gly | Phe | Thr | Phe | Ser | Asp | Phe |
|          |     | 20  |     |     |     |     | 25  |     |     |     | 30  |     |     |     |     |
| Tyr      | Met | Glu | Trp | Val | Arg | Gln | Pro | Pro | Gly | Lys | Arg | Leu | Glu | Trp | Ile |
|          | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |
| Ala      | Ala | Ser | Arg | Asn | Lys | Ala | Asn | Asp | Tyr | Thr | Thr | Glu | Tyr | Ser | Ala |

|   |     |    |     |     |
|---|-----|----|-----|-----|
| 50  |     | 55 |     | 60  |
| Ser Val Lys Gly Arg Phe Ile Val Ser Arg Asp Thr Ser Gln Ser Ile |     |    |     |     |
| 65  |     | 70 |     | 75  |
| Leu Tyr Leu Gln Met Asn Ala Leu Arg Ala Glu Asp Thr Ala Ile Tyr |     |    |     |     |
|   | 85  |    | 90  |     |
| Tyr Cys Ala Arg Asp Tyr Tyr Gly Ser Ser Tyr Trp Tyr Phe Asp Val |     |    |     |     |
|   | 100 |    | 105 | 110 |
| Trp Gly Ala Gly Thr Thr Val Thr Val Ser Ser                     |     |    |     |     |
|   | 115 |    | 120 |     |

<210> 12  
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 <212> PRT  
 <213> Mouse

<220>  
 <221> VARIANT  
 <222> (1)...(123)  
 <223> S63-myeloma protein

|   |
|---|
| <400> 12  |
| Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly |
| 1 5 10 15   |
| Ser Leu Arg Leu Ser Cys Ala Thr Ser Gly Phe Thr Phe Ser Asp Phe |
| 20 25 30  |
| Tyr Met Glu Trp Val Arg Gln Pro Pro Gly Lys Arg Leu Glu Trp Ile |
| 35 40 45  |
| Ala Ala Ser Arg Asn Lys Ala Asn Asp Tyr Thr Thr Glu Tyr Ser Ala |
| 50 55 60  |
| Ser Val Lys Gly Arg Phe Ile Val Ser Arg Asp Thr Ser Gln Ser Ile |
| 65 70 75 80   |
| Leu Tyr Leu Gln Met Asn Ala Leu Arg Ala Glu Asp Thr Ala Ile Tyr |
| 85 90 95  |
| Tyr Cys Ala Arg Asp Tyr Tyr Gly Ser Ser Tyr Trp Tyr Phe Asp Val |
| 100 105 110   |
| Trp Gly Ala Gly Thr Thr Val Thr Val Ser Ser                     |
| 115 120   |

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 <212> PRT  
 <213> Mouse

<220>  
 <221> VARIANT  
 <222> (1)...(123)  
 <223> Y5236-myeloma protein

|   |
|---|
| <400> 13  |
| Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly |
| 1 5 10 15   |
| Ser Leu Arg Leu Ser Cys Ala Thr Ser Gly Phe Thr Phe Ser Asp Phe |
| 20 25 30  |
| Tyr Met Glu Trp Val Arg Gln Pro Pro Gly Lys Arg Leu Glu Trp Ile |





|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
|     |     | 20  |     |     |     |     |     | 25  |     |     |     |     | 30  |     |     |  |  |
| Tyr | Met | Glu | Trp | Val | Arg | Gln | Pro | Pro | Gly | Lys | Arg | Leu | Glu | Trp | Ile |  |  |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |  |  |
| Ala | Ala | Ser | Arg | Asn | Lys | Ala | Asn | Asp | Tyr | Thr | Thr | Glu | Tyr | Ser | Ala |  |  |
|     |     | 50  |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |  |  |
| Ser | Val | Lys | Gly | Arg | Phe | Ile | Val | Ser | Arg | Asp | Thr | Ser | Gln | Ser | Ile |  |  |
| 65  |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     |     | 80  |  |  |
| Leu | Tyr | Leu | Gln | Met | Asn | Ala | Leu | Arg | Ala | Glu | Asp | Thr | Ala | Ile | Tyr |  |  |
|     |     |     |     | 85  |     |     |     | 90  |     |     |     |     | 95  |     |     |  |  |
| Tyr | Cys | Ala | Arg | Asp | Tyr | Tyr | Gly | Asn | Ser | Tyr | Trp | Tyr | Phe | Asp | Val |  |  |
|     |     |     | 100 |     |     |     | 105 |     |     |     |     | 110 |     |     |     |  |  |
| Trp | Gly | Ala | Gly | Thr | Thr | Val | Thr | Val | Ser | Ser |     |     |     |     |     |  |  |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     |     |     |     |     |  |  |

<210> 16  
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<220>  
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 <222> (1)...(123)  
 <223> M603-myeloma protein

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Glu | Val | Lys | Leu | Val | Glu | Ser | Gly | Gly | Gly | Leu | Val | Gln | Pro | Gly | Gly |  |  |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     | 15  |     |     |     |  |  |
| Ser | Leu | Arg | Leu | Ser | Cys | Ala | Thr | Ser | Gly | Phe | Thr | Phe | Ser | Asp | Phe |  |  |
|     |     |     | 20  |     |     |     | 25  |     |     |     | 30  |     |     |     |     |  |  |
| Tyr | Met | Glu | Trp | Val | Arg | Gln | Pro | Pro | Gly | Lys | Arg | Leu | Glu | Trp | Ile |  |  |
|     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |  |  |
| Ala | Ala | Ser | Arg | Asn | Lys | Gly | Asn | Lys | Tyr | Thr | Thr | Glu | Tyr | Ser | Ala |  |  |
|     |     | 50  |     |     |     | 55  |     |     |     | 60  |     |     |     |     |     |  |  |
| Ser | Val | Lys | Gly | Arg | Phe | Ile | Val | Ser | Arg | Asp | Thr | Ser | Gln | Ser | Ile |  |  |
| 65  |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     |     | 80  |  |  |
| Leu | Tyr | Leu | Gln | Met | Asn | Ala | Leu | Arg | Ala | Glu | Asp | Thr | Ala | Ile | Tyr |  |  |
|     |     |     |     | 85  |     |     |     | 90  |     |     |     |     | 95  |     |     |  |  |
| Tyr | Cys | Ala | Arg | Asn | Tyr | Tyr | Gly | Ser | Thr | Tyr | Trp | Tyr | Phe | Asp | Val |  |  |
|     |     |     | 100 |     |     |     | 105 |     |     |     |     | 110 |     |     |     |  |  |
| Trp | Gly | Ala | Gly | Thr | Thr | Val | Thr | Val | Ser | Ser |     |     |     |     |     |  |  |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     |     |     |     |     |  |  |

<210> 17  
 <211> 123  
 <212> PRT  
 <213> Mouse

<220>  
 <221> VARIANT  
 <222> (1)...(123)  
 <223> W3207-myeloma protein

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Glu | Val | Lys | Leu | Val | Glu | Ser | Gly | Gly | Gly | Leu | Val | Gln | Pro | Gly | Gly |  |  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |  |  |
| Ser | Leu | Arg | Leu | Ser | Cys | Ala | Thr | Ser | Gly | Phe | Thr | Phe | Ser | Asp | Phe |  |  |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |  |  |
| Tyr | Met | Glu | Trp | Val | Arg | Gln | Pro | Pro | Gly | Lys | Arg | Leu | Glu | Trp | Ile |  |  |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |  |  |
| Ala | Ala | Ser | Arg | Asn | Lys | Ala | Asn | Asp | Tyr | Thr | Thr | Glu | Tyr | Ser | Ala |  |  |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |  |  |
| Ser | Val | Lys | Gly | Arg | Phe | Ile | Val | Ser | Arg | Asp | Thr | Ser | Gln | Ser | Ile |  |  |
| 65  |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     |     | 80  |  |  |
| Leu | Tyr | Phe | Gln | Met | Asn | Ala | Leu | Arg | Ala | Glu | Asp | Thr | Ala | Ile | Tyr |  |  |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |  |  |
| Tyr | Cys | Ala | Arg | Asn | Tyr | Tyr | Lys | Tyr | Asp | Leu | Trp | Tyr | Val | Asp | Val |  |  |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |  |  |
| Trp | Gly | Ala | Gly | Thr | Thr | Val | Thr | Val | Ser | Ser |     |     |     |     |     |  |  |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     |     |     |     |     |  |  |

<210> 18  
 <211> 124  
 <212> PRT  
 <213> Mouse

<220>  
 <221> VARIANT  
 <222> (1)...(123)  
 <223> M511-myeloma protein

|          |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| <400> 18 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Glu      | Val | Lys | Leu | Val | Glu | Ser | Gly | Gly | Gly | Leu | Val | Gln | Pro | Gly | Gly |  |  |
| 1        |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |  |  |
| Ser      | Leu | Arg | Leu | Ser | Cys | Ala | Thr | Ser | Gly | Phe | Thr | Phe | Ser | Asp | Phe |  |  |
|          |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |  |  |
| Tyr      | Met | Glu | Trp | Val | Arg | Gln | Pro | Ser | Gly | Lys | Arg | Leu | Glu | Trp | Ile |  |  |
|          |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |  |  |
| Ala      | Ala | Ser | Arg | Asn | Lys | Ala | Asn | Asp | Tyr | Thr | Thr | Glu | Tyr | Ser | Ala |  |  |
|          | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |  |  |
| Ser      | Val | Lys | Gly | Arg | Phe | Ile | Val | Ser | Arg | Asp | Thr | Ser | Gln | Ser | Ile |  |  |
| 65       |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     |     | 80  |  |  |
| Leu      | Tyr | Leu | Gln | Met | Asn | Ala | Leu | Arg | Ala | Glu | Asp | Thr | Ala | Ile | Tyr |  |  |
|          |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |  |  |
| Tyr      | Cys | Ala | Arg | Asp | Gly | Asp | Tyr | Gly | Ser | Ser | Tyr | Trp | Tyr | Phe | Asp |  |  |
|          |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |  |  |
| Val      | Trp | Gly | Ala | Gly | Thr | Thr | Val | Thr | Val | Ser | Ser |     |     |     |     |  |  |
|          |     | 115 |     |     |     |     | 120 |     |     |     |     |     |     |     |     |  |  |

<210> 19  
 <211> 125  
 <212> PRT  
 <213> Mouse

<220>  
 <221> VARIANT  
 <222> (1)...(123)  
 <223> M167-myeloma protein

<400> 19  
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 1 5 10 15  
 Ser Leu Arg Leu Ser Cys Ala Thr Ser Gly Phe Thr Phe Ser Asp Phe  
 20 25 30  
 Tyr Met Glu Trp Val Arg Gln Thr Pro Gly Lys Arg Leu Glu Trp Ile  
 35 40 45  
 Ala Ala Ser Arg Ser Lys Ala His Asp Tyr Thr Arg Glu Tyr Ser Ala  
 50 55 60  
 Ser Val Lys Gly Arg Phe Ile Val Ser Arg Asp Thr Ser Gln Ser Val  
 65 70 75 80  
 Leu Tyr Leu Gln Met Asn Ala Leu Arg Ala Glu Asp Thr Ala Thr Tyr  
 85 90 95  
 Tyr Cys Thr Arg Asp Ala Asp Tyr Gly Asn Ser Tyr Phe Gly Tyr Phe  
 100 105 110  
 Asp Val Trp Gly Ala Gly Thr Thr Val Thr Val Ser Ser  
 115 120 125

<210> 20  
 <211> 110  
 <212> DNA  
 <213> Mouse

<400> 20  
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 actggctact ccataccag tgcttattac tggaactgga tccggcagtt 110

<210> 21  
 <211> 110  
 <212> DNA  
 <213> Mouse

<220>  
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 <222> (1)...(110)  
 <223> n=A,T,C, or G

<400> 21  
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 tctggccaca ccttgactag ttactggata cactgggtaa aanagaggcc 110

<210> 22  
 <211> 109  
 <212> DNA  
 <213> Mouse

<220>  
 <221> misc\_feature  
 <222> (1)...(109)  
 <223> n=A,T,C or G

<400> 22  
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 tctggataca ttcacnagct atgttataca ctgggtgaag cagaagcct 109

<210> 23  
<211> 110  
<212> DNA  
<213> Mouse

<400> 23  
ctcgagtctg gacctgaact ggtaaagcct gggacttcag tgaagatgtc ctgcaaggct 60  
tctggataca cattcaccag ctatgttatg cgctgggtga agcacaagcc 110

<210> 24  
<211> 110  
<212> DNA  
<213> Mouse

<220>  
<221> misc\_feature  
<222> (1)...(110)  
<223> n=A,T,C or G

<400> 24  
ctcgagtcag gggctgaact ggtgaagcct ggggtttcag tgaagttgtc ctgcaaggct 60  
tctggctaca ccttcacnag ctactatatg tactgggtga agcagaggcc 110

<210> 25  
<211> 110  
<212> DNA  
<213> Mouse

<220>  
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<222> (1)...(110)  
<223> n=A,T,C or G

<400> 25  
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tctggctact ccttcacnag ctactggatg aactgggtga agcagaggcc 110

<210> 26  
<211> 110  
<212> DNA  
<213> Mouse

<220>  
<221> misc\_feature  
<222> (1)...(110)  
<223> n=A,T,C or G

<400> 26  
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tctcgtactc cttcaccagc tcttgataac tgggtgaagc agaggcctgg 110

<210> 27  
<211> 110

<212> DNA  
<213> Mouse

<220>  
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<222> (1)...(110)  
<223> n=A,T,C or G

<400> 27  
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tcaggattcg atttnagnag atactggatg aattgggtcc ggcagctcca 110

<210> 28  
<211> 110  
<212> DNA  
<213> Mouse

<220>  
<221> misc\_feature  
<222> (1)...(110)  
<223> n=A,T,C or G

<400> 28  
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tcaggattcg atttnagnag ataatggatg agttgggttc ggcaggctcc 110

<210> 29  
<211> 110  
<212> DNA  
<213> Mouse

<220>  
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<222> (1)...(110)  
<223> n= A,T,C' or G

<400> 29  
ctcgagtcctg gaggtggcct ggtgcagcct ggaggatccc tgaagtctc ctgtgcagcc 60  
tcaggattcg atttnagnag atactggatg agttgggtcc ggcagctcca 110

<210> 30  
<211> 110  
<212> DNA  
<213> Mouse

<220>  
<221> misc\_feature  
<222> (1)...(110)  
<223> n=A,T,C or G

<400> 30  
ctcgagtcctg gaggtggcct ggtgcagcct ggaggatccc tcaaactctc ctgtgcagcc 60  
tcaggattcg atttnagnag atactggatg agttgggtcc ggcagctcca 110

<210> 31  
 <211> 110  
 <212> DNA  
 <213> Mouse

<220>  
 <221> misc\_feature  
 <222> (1)...(110)  
 <223> n=A,T,C or G

<400> 31  
 ctcgagtcag gaggtggcct ggtgcagcct ggaggagccc tgaaactctc ctgtgcagcc 60  
 tcaggattcg atttnagnag atactggatg agttgggtcc gcagctccag 110

<210> 32  
 <211> 110  
 <212> DNA  
 <213> Mouse

<220>  
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 <222> (1)...(110)  
 <223> n=A,T,C or G

<400> 32  
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 tctggattca ctttnagnag ttttggaatg cactggattc gtcaggctcc 110

<210> 33  
 <211> 110  
 <212> DNA  
 <213> Mouse

<220>  
 <221> misc\_feature  
 <222> (1)...(110)  
 <223> n=A,T,C or G

<400> 33  
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 tctggattca ctttnagnag ctttggaatg cactgggtta cgtcaggctc 110

<210> 34  
 <211> 110  
 <212> DNA  
 <213> Mouse

<220>  
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 <222> (1)...(110)  
 <223> n=A,T,C or G

<400> 34  
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tcaggctatt ccttcaccag ctactggatg cactgggtga aacagaggcc 110

<210> 35

<211> 110

<212> DNA

<213> Mouse

<400> 35

ctcgagtcag gggctgaact ggcaaacct ggggcctcag taaagatgtc ctgcaaggct 60

tctggctaca cctcttcttc cttctggctg cactggataa aagaaggcct 110

<210> 36

<211> 110

<212> DNA

<213> Mouse

<220>

<221> misc\_feature

<222> (1)...(110)

<223> n=A,T,C or G

<400> 36

ctcgagtcctg gacctnagct ggtgaagcct ggggttcagt taaaatatcc tgcaaggcct 60

ctggttactc attttctntc tactttgtga actgggtgat gcagagccat 110

<210> 37

<211> 110

<212> DNA

<213> Mouse

<400> 37

ctcgagtcag gggctgaact ggtgaagcct ggggttcagt aagttgtcct gaaggcttct 60

ggctacacct tcaccggcta ctatatgtac tgggtgaagc agaggcctgg 110

<210> 38

<211> 91

<212> DNA

<213> Unknown

<220>

<223> Synthetic

<400> 38

ggccgcaaat tctatttcaa ggagacagtc ataatgaaat acctattgcc tacggcagcc 60

gctggattgt tattactcgc tgcccaacca g 91

<210> 39

<211> 87

<212> DNA

<213> Unknown

<220>

<223> Synthetic

<400> 39  
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 ctaacaataa tgagcgacgg gttggtc 87

<210> 40  
 <211> 82  
 <212> DNA  
 <213> Unknown

<220>  
 <223> Synthetic

<400> 40  
 ccatggccca ggtgaaactg ctcgagattt ctagactagt taccgtagc acgttcgga 60  
 ctacggttct taatagaatt cg 82

<210> 41  
 <211> 86  
 <212> DNA  
 <213> Unknown

<220>  
 <223> Synthetic

<400> 41  
 ggtaccgggt ccactttgac gagctctaaa gatctgatca atgggcatgc tgcaaggcct 60  
 gatgccaaga attatcttaa gcaggt 86

<210> 42  
 <211> 91  
 <212> DNA  
 <213> Unknown

<220>  
 <223> Synthetic

<400> 42  
 ggccgcaaat tctatttcaa ggagacagtc ataatgaaat acctattgcc tacggcagcc 60  
 gctggattgt tattactcgc tgcccaacca g 91

<210> 43  
 <211> 87  
 <212> DNA  
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<220>  
 <223> Synthetic

<400> 43  
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 ctaacaataa tgagcgacgg gttggtc 87

<210> 44  
 <211> 46



<212> DNA  
 <213> Unknown  
  
 <220>  
 <223> Synthetic  
  
 <400> 44  
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 <210> 45  
 <211> 50  
 <212> DNA  
 <213> Unknown  
  
 <220>  
 <223> Synthetic  
  
 <400> 45  
 ggtaccgggt ccactttgac gagctcttaa gatctgatca attatcagct 50  
  
 <210> 46  
 <211> 131  
 <212> DNA  
 <213> Unknown  
  
 <220>  
 <223> Synthetic  
  
 <400> 46  
 tgaattctaa actagtcgcc aaggagacag tcataatgaa atacctattg cctacggcag 60  
 ccgctggatt gttattactc gctgccaac cagccatggc cgagctcgtc agttctagag 120  
 ttaagcggcc g 131  
  
 <210> 47  
 <211> 131  
 <212> DNA  
 <213> Unknown  
  
 <220>  
 <223> Synthetic  
  
 <400> 47  
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 ccgctggatt gttattactc gctgccaac cagccatggc cgagctcgtc agttctagag 120  
 ttaagcggcc g 131  
  
 <210> 48  
 <211> 140  
 <212> DNA  
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 <220>  
 <223> Synthetic

<400> 48  
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 cgtcggcgac ctaacaataa tgagcgacgg gttggtcggt taccggctcg agcagtcaag 120  
 atctcaattc gccggcagct 140

<210> 49  
 <211> 22  
 <212> DNA  
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<220>  
 <223> Synthetic

<400> 49  
 aggtccagct gctcgagtct gg 22

<210> 50  
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 <212> DNA  
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<220>  
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<400> 50  
 aggtgaaact tctcgagtca gg 22

<210> 51  
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 <212> DNA  
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<220>  
 <223> Synthetic

<400> 51  
 aggtccagct gctcgagtct gg 22

<210> 52  
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 <212> DNA  
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<220>  
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<400> 52  
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<210> 53  
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 <210> 54  
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 <400> 54  
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 <210> 55  
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 <210> 58  
 <211> 22  
 <212> DNA  
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<220>  
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 <400> 58  
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 <210> 59  
 <211> 20  
 <212> DNA  
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     degenerate positions  
  
 <221> misc\_feature  
 <222> (1)...(20)  
 <223> n=A,T,C or G  
  
 <400> 59  
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 <210> 60  
 <211> 20  
 <212> DNA  
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     5' degenerate primer containing inosine at 4  
     degenerate positions  
  
 <221> misc\_feature  
 <222> (1)...(20)  
 <223> n=A,T,C or G  
  
 <400> 60  
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 <210> 61  
 <211> 19  
 <212> DNA  
 <213> Unknown  
  
 <220>  
 <223> Synthetic  
  
 <400> 61  
 gcccaaggat gtgctcacc 19  
  
 <210> 62  
 <211> 39

<212> DNA  
 <213> Unknown  
  
 <220>  
 <223> Synthetic  
  
 <400> 62  
 ctattagaat tcaacggtaa cagtgggtgcc ttggcccca 39  
  
 <210> 63  
 <211> 39  
 <212> DNA  
 <213> Unknown  
  
 <220>  
 <223> Synthetic  
  
 <400> 63  
 ctattaacta gtaacggtaa cagtgggtgcc ttggcccca 39  
  
 <210> 64  
 <211> 19  
 <212> DNA  
 <213> Unknown  
  
 <220>  
 <223> Synthetic  
  
 <400> 64  
 ctcagtatgg tggttgtgc 19  
  
 <210> 65  
 <211> 26  
 <212> DNA  
 <213> Unknown  
  
 <220>  
 <223> Synthetic  
  
 <400> 65  
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 <210> 66  
 <211> 23  
 <212> DNA  
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 <220>  
 <223> Synthetic  
  
 <400> 66  
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 <210> 67

<211> 30  
 <212> DNA  
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 <220>  
 <223> Synthetic  
  
 <400> 67  
 aattttacta gtcaccttgg tgctgctggc 30  
  
 <210> 68  
 <211> 39  
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 <220>  
 <223> Synthetic  
  
 <400> 68  
 tatgcaacta gtacaaccac aatccctggg cacaatttt 39  
  
 <210> 69  
 <211> 32  
 <212> DNA  
 <213> Unknown  
  
 <220>  
 <223> Synthetic  
  
 <400> 69  
 ccagttccga gctcgttggtg actcaggaat ct 32  
  
 <210> 70  
 <211> 32  
 <212> DNA  
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 <220>  
 <223> Synthetic  
  
 <400> 70  
 ccagttccga gctcgtggtg acgcagccgc cc 32  
  
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 <211> 32  
 <212> DNA  
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<210> 72  
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<220>  
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32

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<212> DNA  
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<220>  
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32

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 <212> DNA  
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<400> 83  
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 degenerate positions.

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           degenerate positions.  
  
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| <400> 95                                     |    |
| agggtgaaact gctcgagatt tctagactag ttacccgtag | 40 |
| <210> 96                                     |    |
| <211> 33                                     |    |
| <212> DNA                                    |    |
| <213> Unknown                                |    |
| <220>  |    |
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| <400> 96                                     |    |
| gacgttcgga actacgggttc ttaatagaat tcg        | 33 |
| <210> 97                                     |    |
| <211> 28                                     |    |
| <212> DNA                                    |    |
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| <223> Synthetic                              |    |
| <400> 97                                     |    |
| tcgacgaatt ctattaagaa ccgtagtc               | 28 |
| <210> 98                                     |    |
| <211> 38                                     |    |
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| <400> 98                                     |    |
| cggaacgtcg tacgggtaac tagtctagaa atctcgag    | 38 |
| <210> 99                                     |    |
| <211> 34                                     |    |
| <212> DNA                                    |    |
| <213> Unknown                                |    |
| <220>  |    |
| <223> Synthetic                              |    |
| <400> 99                                     |    |
| tgaattctaa actagtcgcc aaggagacag tcac        | 34 |
| <210> 100                                    |    |
| <211> 37                                     |    |
| <212> DNA                                    |    |
| <213> Unknown                                |    |
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<223> Synthetic

<400> 100

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37

<210> 101

<211> 31

<212> DNA

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<220>

<223> Synthetic

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gttattactc gctgcccaac cagccatggc c

31

<210> 102

<211> 30

<212> DNA

<213> Unknown

<220>

<223> Synthetic

<400> 102

gagctcgtca gttctagagt taagcggccg

30

<210> 103

<211> 48

<212> DNA

<213> Unknown

<220>

<223> Synthetic

<400> 103

gtatttcatt atgactgtct ccttggcgac tagtttagaa ttcaagct

48

<210> 104

<211> 40

<212> DNA

<213> Unknown

<220>

<223> Synthetic

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cagcgagtaa taacaatcca gcggctgccg taggcaatag

40

<210> 105

<211> 27

<212> DNA

<213> Unknown

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<223> Synthetic

<400> 105

tgacgagctc ggccatggct ggttggg

27

<210> 106

<211> 24

<212> DNA

<213> Unknown

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<223> Synthetic

<400> 106

tcgacggccg cttaactcta gaac

24

*OK  
Caru w*